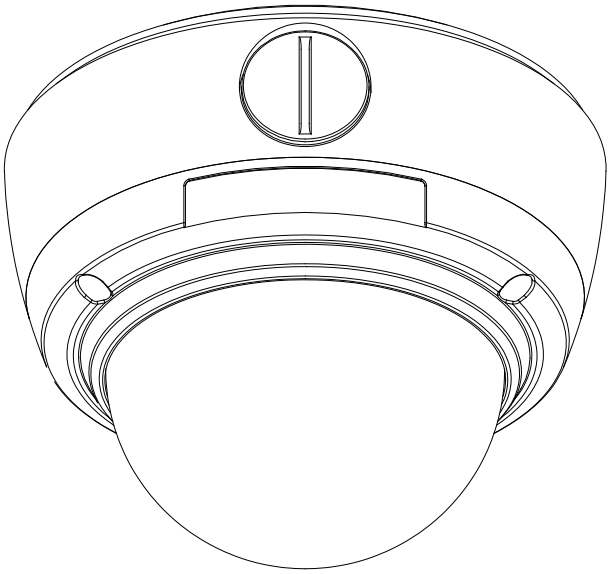
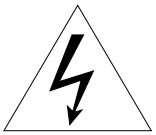


IPE3500M

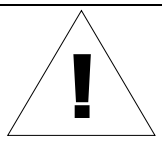
Installation Guide

INFORMATION TO USER

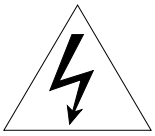


CAUTION

RISK OF ELECTRIC SHOCK,
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SEERIVCE PERSONEL.



This symbol is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Table of Contents

1. FEATURES 4
2. PACKAGE CONTENTS 5
3. PART NAMES 6
3.1.Internal View 6
4. INSTALLATION 8
4.1. Installation Template 9
4.2. Manual adjustment for 3-axis movements 10
4.3. Setting the Image Attribute 10
5. CONNECTIONS 11
5.1.Connectors 11
6. CONFIGURATION 13
6.1.Set up network environment 13
6.2. View video on web page 13
6.2.1. View video using IPAdmin Tool 13
6.2.2.View video using IP address 15
6.3. Reset 15
6.4. Factory Default 15
APPENDIX (A): SPECIFICATIONS 16
Summary 16
Resolutions per Codec Frame rate 17
Environment Condition 17
Mechanical Condition 17
APPENDIX (B): POWER OVER ETHERNET 19
PoE compatibility 19
Power classification 19
APPENDIX (C): DIMENSIONS 20
APPENDIX (D): HEXADECIMAL-DECIMAL CONVERSION TABLE 21
REVISION HISTORY 22

1. FEATURES

Camera

- Indoor/Outdoor Fixed Dome IP Camera (Vandal Proof)
- High Quality Compression in real time streaming
- Aptina (Micron) 1/3.2” (4:3) CMOS 2M
- Digital Day & Night
- Improvement of color rolling suppression

Streaming

- Dual streaming mode (such as different codec/resolution/bit rate and so on.)
- Burnt-in text supported
- Unicast/Multicast supported

Video/Audio

- Video compression: H.264/MPEG/MJPEG, 25/30FPS@D1(PAL/NTSC)
- Audio compression: G.711(µLaw, aLaw)/PCM
- Video Motion Detection supported
- Two-way mono audio supported

Network

- RTSP/ HTTP protocol supported
- 10/100 Base-T Ethernet

Additional Features

- RS-485 supported
- Micro SD card supported
- PoE supported
- Built-in Video Content Analysis
- OSD supported
- SDK (Software Development Kit) provided

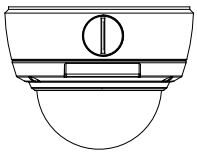
VCA (Video Content Analysis)

- VCA Presence (Included as basic)
- VCA Surveillance (Optional)

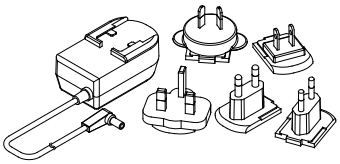
2. PACKAGE CONTENTS

Unpack carefully and handle the equipment with care. The packaging contains:

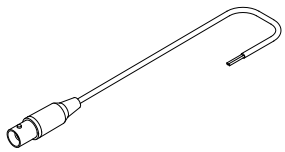
Camera



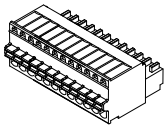
DC power adaptor



Power extension cable

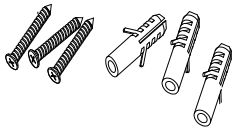


11 Pin terminal block

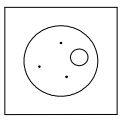


Hex wrench driver

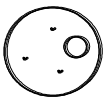
Screws and Anchor blocks



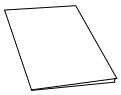
Installation Template



Surface Cushion
(for protection against dust)



Quick Installation Guide

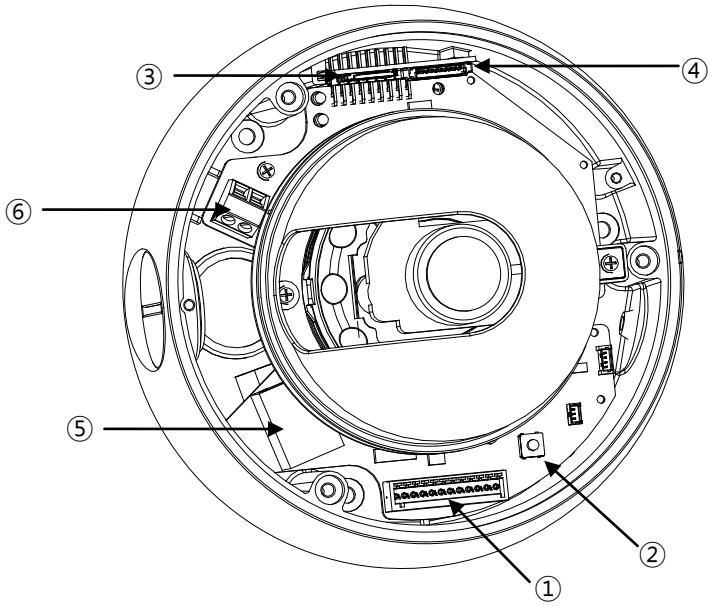


Note

The above contents are subject to change without prior notice.

3. PART NAMES

3.1.Internal View



* Models herein and their appearance are subject to change without any prior notice.

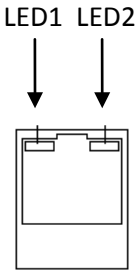
① 11 pin terminal block for D/I, D/O, audio, and serial communication
11 pin terminal block for D/I, D/O, Audio in /Out and serial communication. Refer to the section "**5.1.Connectors"** for more specific information.

② Reset
Reset switch is used for restarting or resetting the camera to Factory Default (FD). Refer to the section "**6.3. Reset"** for more specific information.

③ **Extension cable Socket**
It is a socket for LAN and power connector

④ Micro SD Card Socket
It is a memory card slot for external storage.

⑤ LAN Connector (Ethernet)
This is a RJ45 LAN connector for 10/100 Base-T Ethernet. This socket can also be used to power the camera via PoE (Optional).

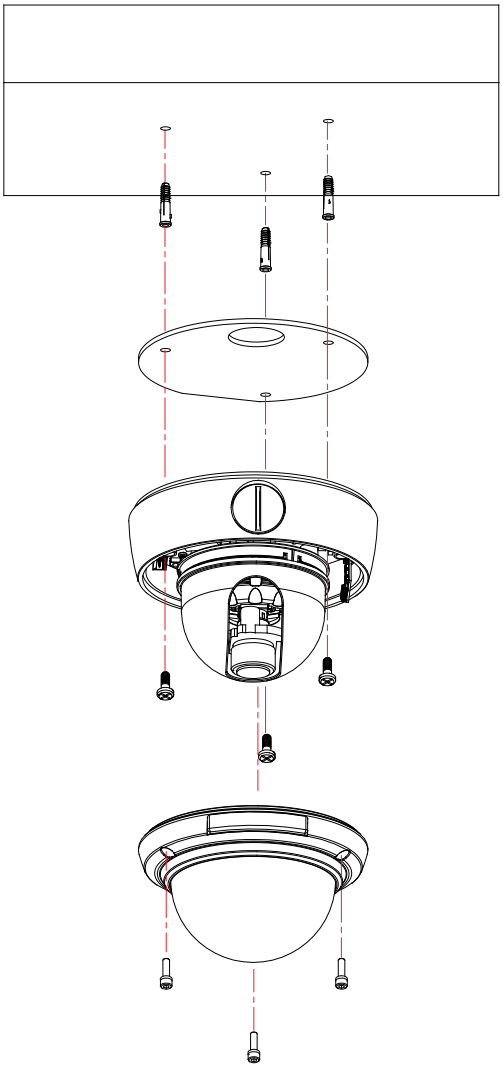


This LED lights up as orange and turns green when the encoder is powered on.

LED operation setting:
For the factory default setting, LED 2 blinks for the heartbeat and LED 1 turns on for video signal. To change its setting, refer to the section ***4.5.11. LED Setting*** of the ***NVC Web Page User's Manual.***

⑥ Power Adaptor Connector (DC 12V)
The camera needs a DC 12V 1A adapter for power supply.

4. INSTALLATION



1) Place the installation template that is provided in the package on the desired position of installation.

2) Attach the surface cushion on the bottom plate of the device.

3) Drill three holes on the template and insert anchor blocks into the holes. Fasten the camera with screws.

4) Make sure the cables are properly connected to the device.

5) Put the dome cover on the main body of the camera. Make sure the main body and the cover fit each other into place.

6) Fasten the cover with screws.

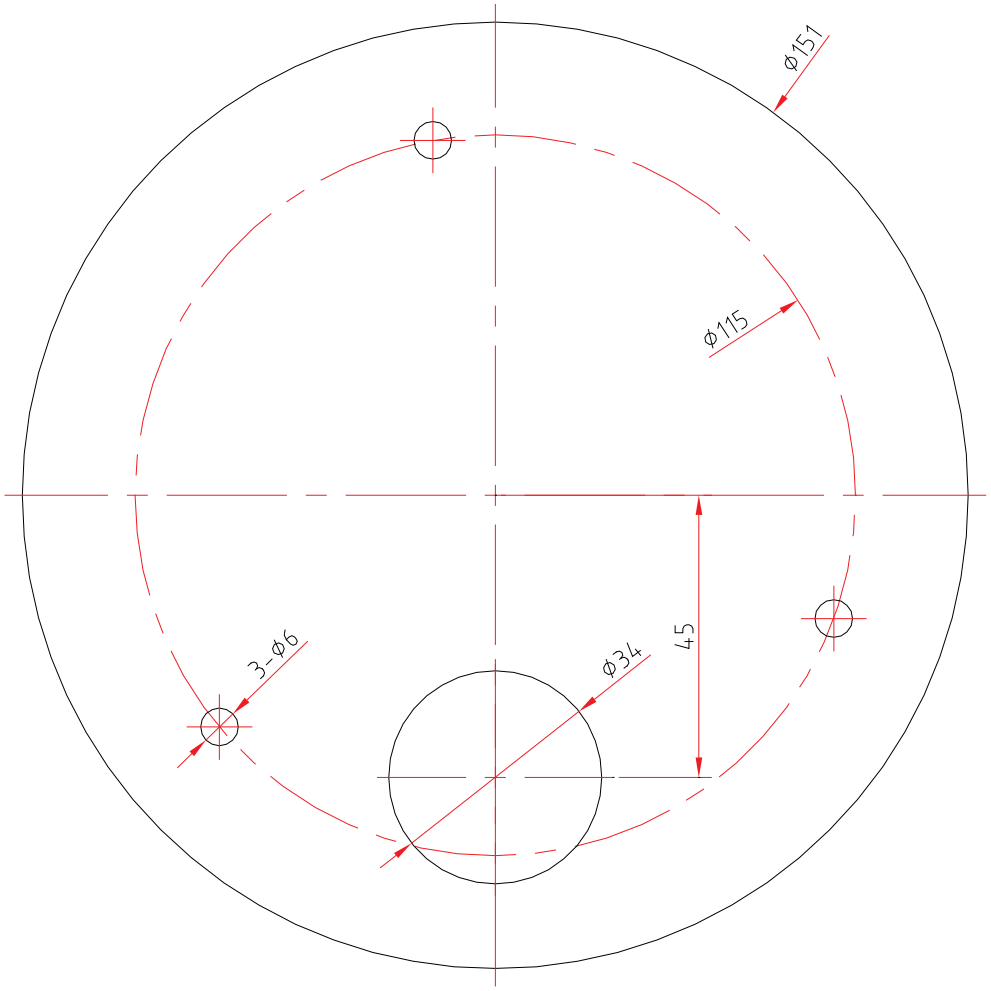
Note

When assembling the main body of the camera and its dome cover, make sure they fit each other into place.

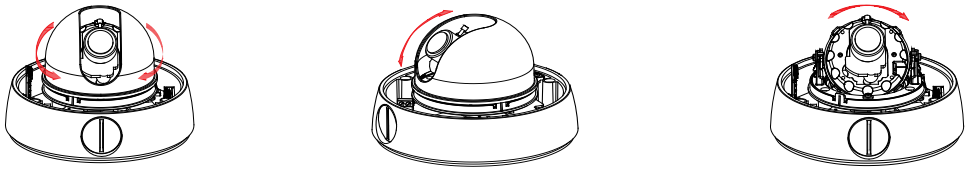
Caution

The camera may fall off the ceiling even after the proper installation and mounting. To prevent any accident, make sure the ceiling is firm and stable enough to support the camera. If any reinforcement is needed, consult with your safety personnel and proceed with the installation.

4.1. Installation Template



4.2. Manual adjustment for 3-axis movements



After installation, make a manual adjustment on the lens body. Perform 3-axis movements manually by turning the lens body to different directions as above, and check if it moves properly.

Note

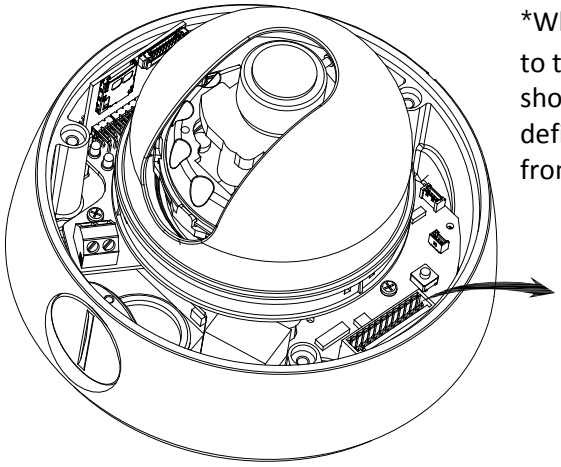
If a camera with a high zoom lens is subjected to an environment with temperature variation (approximately 10 ˚C, but dependable on the zoom level), there may be a focus shift causing a blurry image. Make sure to consider the installation environment when you use a high zoom lens.

4.3. Setting the Image Attribute

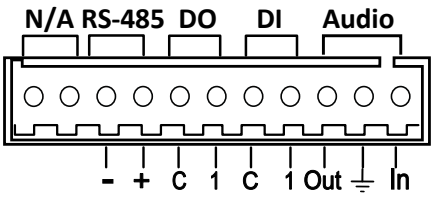
You can set the image attribute of camera through the webpage.
The menu of image attribute can be seen under **Setup > Video & Audio > Video-in > Attribute Setting**. Brightness, contrast, saturation and sharpness can be adjusted.

5. CONNECTIONS

5.1.Connectors

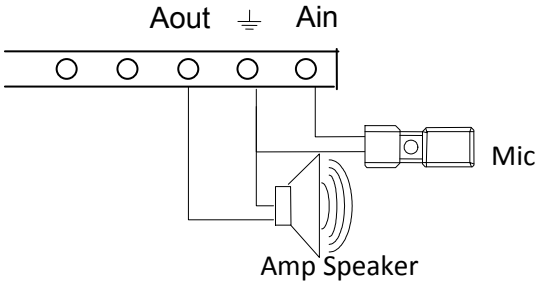


*When connecting leads from external devices to the terminal block, use the pin definitions shown on the circuit board as a guide. Pin definitions on the circuit board may be different from those shown below.



① Audio In / Out

The camera has a mono audio input and a mono audio output. As the output power for the audio is low, amplifier speaker is needed (Do not use a headphone or earphone directly to the camera).

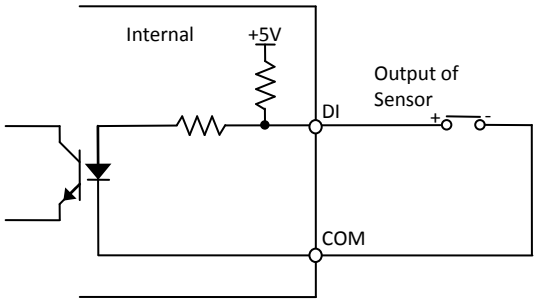


② Sensor (DI) connection

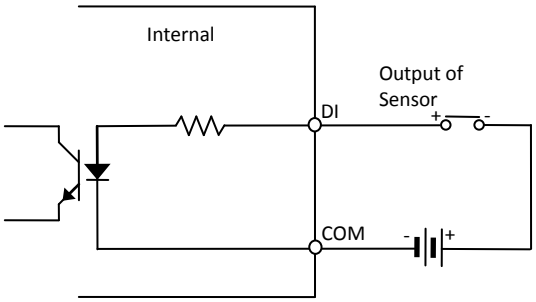
The camera provides 1 channel D/I. It can be connected to either a voltage type sensor or a relay type sensor as the following figures. It can be selected by software.

Input voltage range: 0VDC minimum to 5VDC maximum, Max 50mA
Input voltage threshold: 4.5V

Do not exceed the maximum input voltage or relay rate.



Relay Type



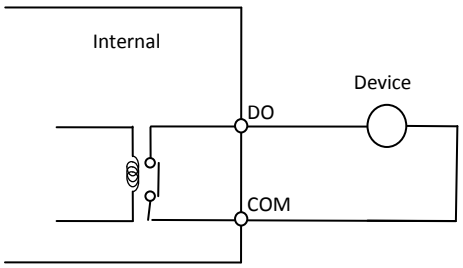
Voltage Type

③ Alarm (DO) connection

Only the relay type is supported.

Relay Rating: Max 24VAC 500mA or 12VDC 1A

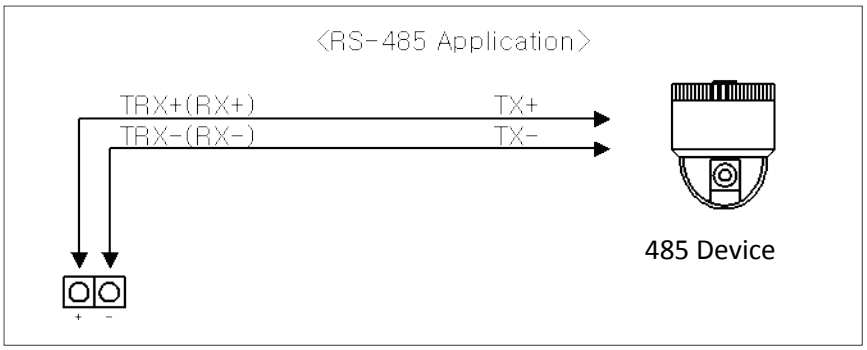
Do not exceed the maximum relay rating.



Relay Type

④ RS-485

The RS-485 serial port consists of TRX+(RX+) and TRX-(RX-) as following the following image.



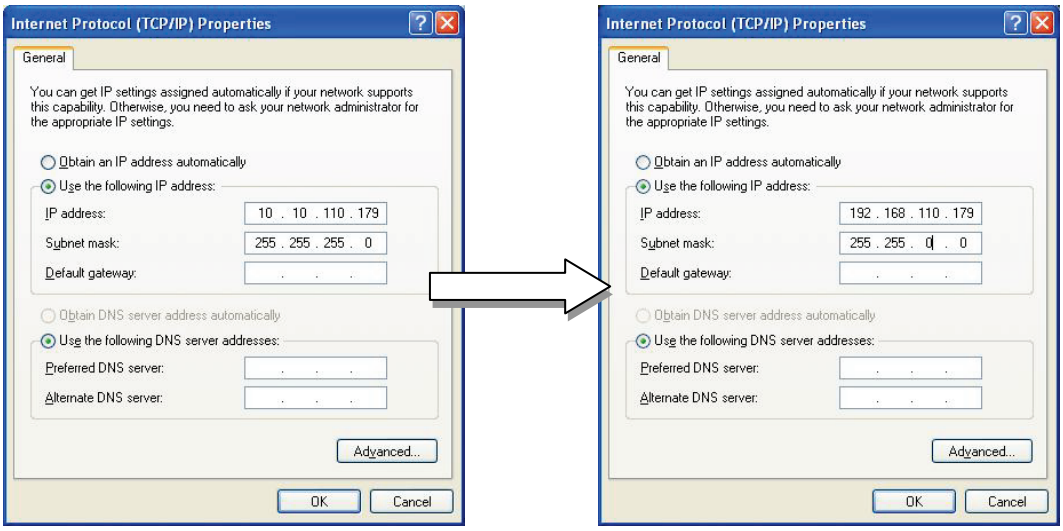
RS-485 Connection

6. CONFIGURATION

6.1.Set up network environment

The default IP address of your IP device is 192.168.XXX.XXX. You can find the available IP address from the MAC address of your device. Please make sure the device and your PC are on the same network segment before running the installation. If the network segment between your PC and the device is different, change your PC's settings as below.

IP address : **192.168.xxx.xxx**
Subnet mask: **255.255.0.0**


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 10 . 10 . 110 . 179
Subnet mask: 255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel
Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 110 . 179
Subnet mask: 255 . 255 . 0 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

6.2. View video on web page

View the live video on a web page using your IP device and its IP address. You can use the IPAdminTool or enter the IP address on the web page.

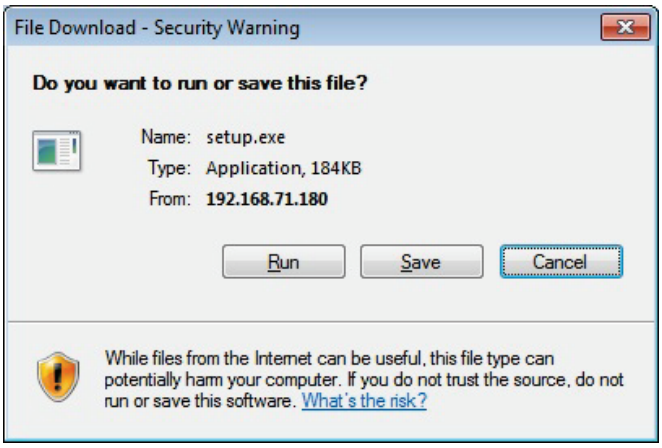
6.2.1. View video using IPAdmin Tool

IPAdminTool automatically searches all activated network encoders and IP cameras and shows the product name, IP address, MAC address and etc. IPAdminTool is provided with SDK at the following SDK path.

```
{SDK root}\BIN\TOOLS\AdminTool\
```

To use the IPAdminTool and view the live video on a web page:

1. Start IPAdminTool. Names and info of currently activated devices appear as a list.
2. Right-click on the desired device and select **Web view**.
3. Click **pop-up blocked** and install the ActiveX setup.exe by clicking the **Run** or **Save** button. You need to install the ActiveX for displaying the images.


File Download - Security Warning
Do you want to run or save this file?
Name: setup.exe
Type: Application, 184KB
From: 192.168.71.180
Run
Save
Cancel
While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

4. Follow the instructions of the dialog boxes and complete the installation. Then the live video is displayed on the main page of the web browser.
5. If the live video is not displayed with the message said, "*This software requires the Microsoft XML Parser V6 or higher. Please download MSXML6 from the Microsoft website to continue. Error code: Can not create XMLDOMDocument.*", please download and install the relevant MSXML.

Note

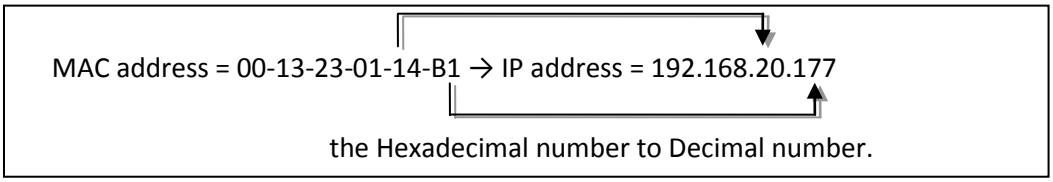
If the ActiveX ***setup.exe*** file fails to be installed successfully, close all of the Internet Explorer windows and go to **Program Files** > **AxInstall** folder on your computer. Then, run ***Uninstall.exe*** and try to perform the steps 1 to 4 above again.

6.2.2.View video using IP address

View the live video on a web page using your IP device and its IP address. To have the correct IP address ready and use it on a web page:

1. Convert a MAC address to an IP address or check the IP address on the IPAdminTool. Refer to *Appendix (D) : Hexadecimal-Decimal Conversion Table*.

(The MAC address is attached on the side or bottom of the device.)



2. Open a web browser and enter the IP address of the device.
3. Click **Continue to this website** on the Security Certificate Alert page.
4. Click **pop-up blocked** and install the ActiveX control as below. You need to install the ActiveX for displaying the images.
5. Wait for a few seconds while the web page loads. The live video is displayed.

6.3. Reset

1. While the device is in use, press and hold the Reset button.
2. Release the Reset button after 3 seconds.
3. Wait for the system to reboot.

6.4. Factory Default

1. Disconnect the power supply from the device.
2. Connect the power to the device with the Reset button pressed and held.
3. Release the Reset button after 5 seconds.
4. Wait for the system to reboot.

The factory default settings can be inferred as follows:

IP address:	192.168.xx.yy
Network mask:	255.255.0.0
Gateway:	192.168.0.1
User ID:	root
Password:	pass

APPENDIX (A): SPECIFICATIONS

Summary

Camera Module			
CMOS	Image Sensor	Aptina (Micron) 1/3.2" (4:3) CMOS 2M	
	Effective Pixels	1600 x 1200 (UXGA, 2M)	
	Scanning system	Progressive	
ELECTRICAL	Resolution	750 TV Lines	
	Min. Illumination	0.5 Lux(50IRE), 0.1 Lux(DSS x5 ON)	
	SNR	71dB	
	Color	ON/Auto	
	AGC Control	Auto	
	White Balance	Auto	
	Electronic Shutter Speed	Auto	
Lens		3.3~12 mm, F1.6~3.2, CS mount	
Day & Night		Software Day & Night	
Electrical Characteristics			
Video Output		Not available	
Audio Input		Linein, 1.43Vp-p(Min 1.35Vp-p, max 1.49 Vp-p), 39 KΩ	
Audio Output		Lineout, 46mW Power, 16 Ω	
Sensor(D/I)		Max 50mA@5VDC, TTL level 4.5V threshold	
Alarm(D/O)		Max 500mA@24VAC or 1A@12VDC On-state resistance: 50 Ω (max continuous)	
Power Source		DC 12V / PoE IEEE802.3af(class 0)	
Power Consumption (Approx.)		3.24W (DC 12V) / 3.6W (PoE)	
Video			
Compression Format		H.264, MPEG-4 (up to D1 only), and MJPEG	
Number of Streams		Dual Stream, Configurable	
Resolution		D1, VGA, QVGA, 4CIF, 2CIF, CIF, QCIF, XGA, HD720, SXGA, UXGA	
Compression FPS (In case of VCA or Burnt In Annotation on, fps could be decreased)		H.264	5 fps@UXGA (1600 x 1200) 8 fps@SXGA (1280 x 1024) 12 fps@HD720 (1280 x 720) 15 fps@XGA (1024 x 768), D1 (720 x 480)
		MJPEG	15 fps@UXGA (1600 x 1200)
		MPEG-4	15fps@D1&720x480)
Motion Detection		Supported	

Burnt-in Text (Digital)	Supported (DSP)
Output	Not supported
Audio	
Input/output	1/1 channel
Compression Format	G.711
Function	
Digital Input/output	1/1 channel
RS-485	Supported
Network	10/100 Base-T
Power over Ethernet	Supported
Protocol	TCP/IP, UDP/IP, HTTP, RTSP, RTCP, RTP/UDP, RTP/TCP, SNTP, mDNS, UPnP, SMTP, IGMP, DHCP, FTP, DDNS, SSL v2/v3, IEEE 802.1X, SNMP v2/v3
USB port	Not Available
SD Slot	Supported (MicroSD) ※ Micro SD Card is not included

Resolutions per Codec Frame rate

Codec / Resolution	MPEG4	H.264	MJPEG
UXGA (1600x1200)	Not available	5 fps	15 fps
SXGA (1280x1024)	Not available	8 fps	
HD720 (1280x720)	Not available	12 fps	
XGA (1024x768)	Not available	15 fps	
D1 (720x)	15 fps		
4CIF (704x)			
2CIF (704x)			
VGA (640x)			
CIF (352x)			
QVGA (320x)			
QCIF (176x)			

Environment Condition

Operating Temperature	-10 ˚C ~ 50 ˚C (14˚F ~ 122 ˚F)
Operating Humidity	Up to 85% RH

Mechanical Condition

Material	Aluminum Die Casting / Polycarbonate
Color	Ivory
Dimension	Housing: 150.8(ø) x 113.5(H) mm Dome: 100(ø)

Weight (Approx)	1,170g

APPENDIX (B): POWER OVER ETHERNET

The Power over Ethernet (PoE) is designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af Power-over-Ethernet (PoE) standard. IEEE 802.3af allows for two power options for Category 5 cables.
The PoE module signature and control circuit provides the PoE compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 15W power to the port.
The high efficiency DC/DC converter operates over a wide input voltage range and provides a regulated low ripple and low noise output. The DC/DC converter also has built-in overload and short-circuit output protection.

Note: For proper activation of 12V PoE, the Category 5 cable must be shorter than 140m and conform the PoE standard.

PoE compatibility

With non Power Sourcing Equipment (PSE)
When it is connected with non PSE, the power adaptor should be connected.

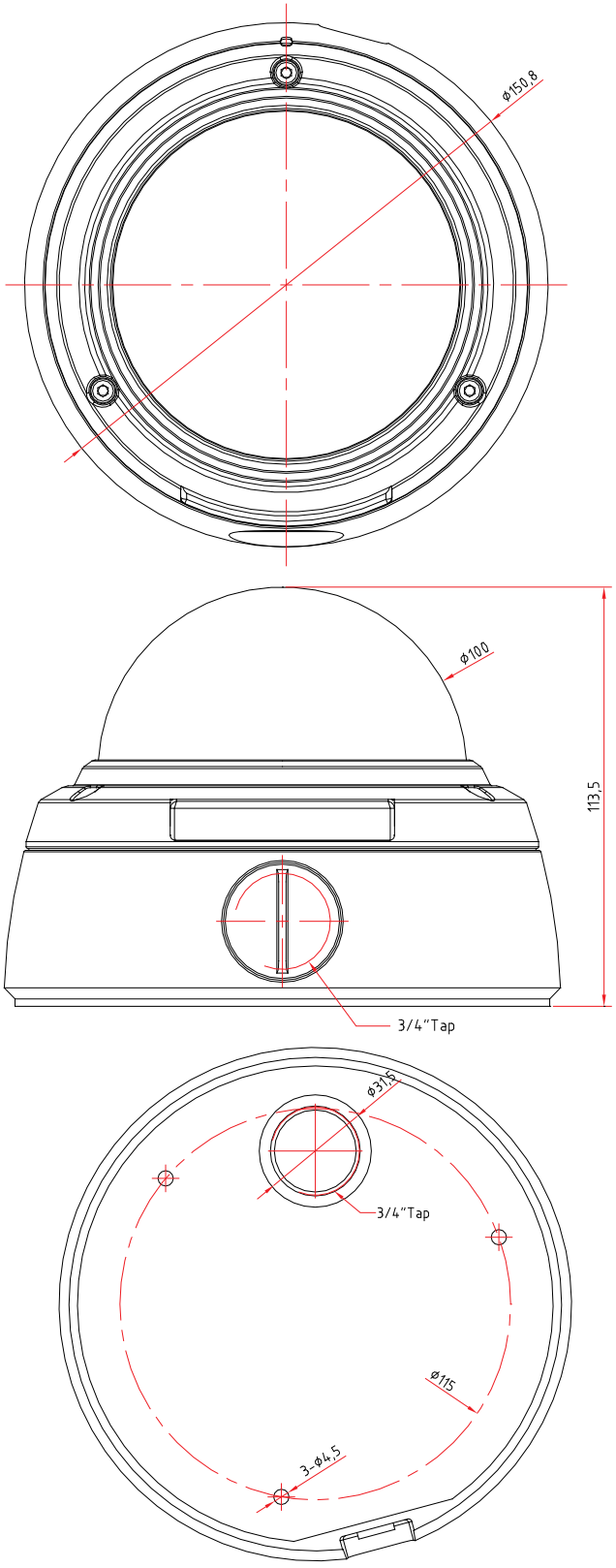
With power adaptor
Connecting both PSE and power adaptor does not do any harm to the products. Disconnecting power adaptor while it is operating does not stop operation. The product continues to work without rebooting.

Power classification

The PoE Power Class supported by the IP device is Class 0.

Class	Usage	Minimum Power Levels Output at the PSE	Maximum Power Levels at the Powered Device
0	Default	15.4W	0.44 to 12.95W

APPENDIX (C): DIMENSIONS



(Unit: mm)

APPENDIX (D): HEXADECIMAL-DECIMAL CONVERSION TABLE

Refer to the following table when you convert the MAC address of your device to IP address.

Hex	Dec
00	0
01	1
02	2
03	3
04	4
05	5
06	6
07	7
08	8
09	9
0A	10
0B	11
0C	12
0D	13
0E	14
0F	15
10	16
11	17
12	18
13	19
14	20
15	21
16	22
17	23
18	24
19	25
1A	26
1B	27
1C	28
1D	29
1E	30
1F	31
20	32
21	33
22	34
23	35
24	36

Hex	Dec
25	37
26	38
27	39
28	40
29	41
2A	42
2B	43
2C	44
2D	45
2E	46
2F	47
30	48
31	49
32	50
33	51
34	52
35	53
36	54
37	55
38	56
39	57
3A	58
3B	59
3C	60
3D	61
3E	62
3F	63
40	64
41	65
42	66
43	67
44	68
45	69
46	70
47	71
48	72
49	73

Hex	Dec
4A	74
4B	75
4C	76
4D	77
4E	78
4F	79
50	80
51	81
52	82
53	83
54	84
55	85
56	86
57	87
58	88
59	89
5A	90
5B	91
5C	92
5D	93
5E	94
5F	95
60	96
61	97
62	98
63	99
64	100
65	101
66	102
67	103
68	104
69	105
6A	106
6B	107
6C	108
6D	109
6E	110

Hex	Dec
6F	111
70	112
71	113
72	114
73	115
74	116
75	117
76	118
77	119
78	120
79	121
7A	122
7B	123
7C	124
7D	125
7E	126
7F	127
80	128
81	129
82	130
83	131
84	132
85	133
86	134
87	135
88	136
89	137
8A	138
8B	139
8C	140
8D	141
8E	142
8F	143
90	144
91	145
92	146
93	147

Hex	Dec
94	148
95	149
96	150
97	151
98	152
99	153
9A	154
9B	155
9C	156
9D	157
9E	158
9F	159
A0	160
A1	161
A2	162
A3	163
A4	164
A5	165
A6	166
A7	167
A8	168
A9	169
AA	170
AB	171
AC	172
AD	173
AE	174
AF	175
B0	176
B1	177
B2	178
B3	179
B4	180
B5	181
B6	182
B7	183
B8	184

Hex	Dec
B9	185
BA	186
BB	187
BC	188
BD	189
BE	190
BF	191
C0	192
C1	193
C2	194
C3	195
C4	196
C5	197
C6	198
C7	199
C8	200
C9	201
CA	202
CB	203
CC	204
CD	205
CE	206
CF	207
D0	208
D1	209
D2	210
D3	211
D4	212
D5	213
D6	214
D7	215
D8	216
D9	217
DA	218
DB	219
DC	220
DD	221

Hex	Dec
DE	222
DF	223
E0	224
E1	225
E2	226
E3	227
E4	228
E5	229
E6	230
E7	231
E8	232
E9	233
EA	234
EB	235
EC	236
ED	237
EE	238
EF	239
F0	240
F1	241
F2	242
F3	243
F4	244
F5	245
F6	246
F7	247
F8	248
F9	249
FA	250
FB	251
FC	252
FD	253
FE	254
FF	255

REVISION HISTORY

MAN#	DATE(M/D/Y)	Comments
D1A.00	09/10/2010	Preliminary version for DP sample
D1A.01	10/26/2010	Preliminary version for DP sample - Added missing specification data
D1A.02	11/15/2010	Preliminary version for DP sample - Added a notice about the temperature change and focus shift
01A.00	12/02/2010	Initial release version
02A.00	03/08/2011	Added LED indicator information Changed the MSXML error message Changed the operating temperature specification
02A.01	05/27/2011	Corrected the supported resolution
02A.02	07/19/2011	Corrected DI voltage range specification
02A.03	07/29/2011	Corrected the lens specification
02A.04	09/14/2011	Removed the video analog output information from the feature list
02A.05	10/18/2011	Added comment for terminal block
02A.06	12/01/2011	Removed Video Out, De-interlacing, and Hue information Added Resolutions per Codec Frame rate table
02A.07	07/03/2012	Supporting protocol revised. (removed SOCK and SSH)